

Title (en)
OPTICAL-MECHANICAL VIBRATING BEAM ACCELEROMETER

Title (de)
OPTISCH-MECHANISCHER VIBRIERENDER STRAHLSCHLEUNIGUNGSMESSER

Title (fr)
ACCÉLÉROMÈTRE À BRAS VIBRANT OPTO-MÉCANIQUE

Publication
EP 3112879 A1 20170104 (EN)

Application
EP 16174468 A 20160614

Priority
• US 201562186233 P 20150629
• US 201614996116 A 20160114

Abstract (en)
Systems, devices, techniques, and methods are disclosed for an opto-mechanical vibrating beam accelerometer. In one example, a system is configured to couple a laser into optical resonance with opto-mechanically active (OMA) anchors suspending a proof mass; lock frequencies of the laser to optical resonances of the OMA anchors, resulting in a modulated laser coupled with the OMA anchors; demodulate a photocurrent that detects the modulated laser coupled with the OMA anchors to detect at least an amplitude or a phase of the modulated laser; lock a frequency of the modulated laser to dynamically track instantaneous resonance frequencies of mechanical modes of the OMA anchors through changes to the amplitude or phase of the modulated laser induced by coupling of the modulated laser to the OMA anchors; and measure an acceleration based on instantaneous resonance frequencies of the OMA anchors through changes to the amplitude or phase of the modulated laser.

IPC 8 full level
G01P 15/093 (2006.01); **G01P 15/097** (2006.01); **G01P 21/00** (2006.01)

CPC (source: EP US)
G01P 15/093 (2013.01 - EP US); **G01P 15/097** (2013.01 - EP US); **G01P 21/00** (2013.01 - EP US); **H01S 5/0014** (2013.01 - US); **H01S 5/0085** (2013.01 - US); **H01S 5/0687** (2013.01 - US)

Citation (search report)
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• [A] WO 2013131067 A1 20130906 - CALIFORNIA INST OF TECHN [US], et al
• [A] EP 2128565 A1 20091202 - NORTHROP GRUMMAN GUIDANCE & EL [US]
• [A] EICHENFIELD ET AL: "A picogram-and nanometre-scale photonic-crystal opto-mechanical cavity", NATURE,, vol. 459, no. 7246, 28 May 2009 (2009-05-28), pages 550 - 555, XP002760045

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Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
EP 3112879 A1 20170104; EP 3112879 B1 20170802; JP 2017015700 A 20170119; US 2016377647 A1 20161229; US 9983225 B2 20180529

DOCDB simple family (application)
EP 16174468 A 20160614; JP 2016124052 A 20160623; US 201614996116 A 20160114